

REMARKS/ARGUMENTS

Claims 1-13 and 15-16 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsawa (US 2001/0032691) in view of Lobert et al (US 4,750,693) and Japan '135 (JP 11-59135). This rejection is respectfully traversed for the following reasons.

In general, the Examiner has failed to produce prior art that teaches the claimed tire surface projections or teachings within the four corners of any cited reference that would instruct one skilled in the art toward modifications necessary to achieve the subject invention. As such, the Examiner's selective and unsubstantiated combination of isolated features from a plurality of disparate, non-analogous art must be considered insufficient under 35 U.S.C. 103 to render the invention unpatentable. As set forth in the claims, the subject projections are specifically recited as including an undercut formed by sides of unequal length forming an apex that protrudes by a height (h) from a radially outer surface from which the first and second sides originate. The problems that the claimed invention is intended to reduce or eliminate are: enhanced self-cleaning; improved optical appearance; improved water repellence that reduces the risk of aquaplaning; and allow for color differentiation. For the Examiner's rejection to be appropriate, the combination of references must teach and show each claimed element and there must be some teaching or suggestion within the references themselves that would instruct one skilled in the art *faced with the problems listed above* (emphasis added) to make the proposed modification and combination of selected elements. Applicants submit the conclusions of the Examiner are not supported by a fair teaching of the references. Moreover, the references do not address the same problems as those addressed by the instant invention and it would not, therefore, be obvious for one skilled in the art to look to the cited art for a solution.

The Examiner has rejected claims 1-13 and 15-16 as obvious over Ohsawa (US2001/0032691) in view of Lobert et al (US 4750693) and Japan '135 (JP 11-59135). The Examiner concedes that the primary reference, Ohsawa, fails to recite using undercut projections in a tire. Such a deficiency in Ohsawa, a reference in which projections of other geometries are recited, is strong evidence of the non-obvious nature of the claimed invention. Clearly Ohsawa teaches asymmetric grooves and projections, a fact that Applicant does not dispute. To this extent, Ohsawa and Kemp (US 6,253,815) are cumulative as both show asymmetric grooves and channels. Both references, however, clearly do not teach undercut projections in a tire and are, therefore, supportive of the novelty of the claimed invention.

The Examiner's summary conclusion that it would be obvious to make the Ohsawa projections in the configuration of an undercut is entirely unsubstantiated hindsight for there is not instruction as to such a reconfiguration within the reference itself. The addition of Lobert et al. does not cure the deficiency in Ohsawa. Lobert is related to a device for *reducing* (emphasis added) the frictional drag of moving bodies such as vehicles. Lobert is not even directed to problems confronted by a tire nor the problems solved by the present invention. The use of undercuts in other art fields for unrelated purposes is not disputed. However, such art is unrelated and un-instructive as to whether and how an undercut may be used and configured for tire applications. The subject invention utilizes undercut projections for the purpose of directing water away from the ground contacting surfaces of a tire for the purpose of eliminating hydroplaning; i.e., enhancing the frictional relationship between the outer surface of the tire and the ground. Clearly Lobert is not intended for such a purpose. In addition, the invention teaches projections that are angled to an apex at variable angles to achieve color differentiation and optical performance. Clearly Lobert does not address such end purposes. Lobert's sole objective is to reduce or eliminate friction between the surface of a vehicle and fluid, i.e., drag. The purpose of the invention, to the contrary, is to enhance friction between the tire and the ground through the channeling of water below the undercut projections. One skilled in the art would not be motivated toward prior art such as Lobert that is intended merely to eliminate drag between the surface of a vehicle and surrounding fluid. Furthermore, Lobert is distinctly not relevant or instructive in the ancillary purposes of promoting a self-cleaning tire surface having enhanced optical performance for visual and color differentiation.

The unexpected results achieved by the present claimed invention is the use of undercut projections that not only provide a well-defined channel to move water away from tire surfaces prone to hydroplaning, but also for accomplishing the ancillary purposes of providing for enhanced optical and color capability through variations in the angle of such projections and/or the angle between neighboring projections. Neither Ohsawa nor Lobert addresses such end objectives. Their combination would hardly be obvious to one skilled in the art whose objective is to achieve end purposes not appreciated or achieved by either reference.

As to claims 2-16 and 18, the rejection is traversed for the same reasons set forth above as to the deficiencies in each of the cited art. The mold used to create the undercut projections cannot be considered obvious in view of a combination of references (Ohsawa

and Lobert) that individually or collectively fail to appreciate and solve the problems toward which the present invention is directed. In addition, with regard to claim 5, the Examiner has rejected the claim based on a 0 degree relationship between projections of Ohsawa. Claim 5 is amended above to clarify that the two neighboring projections are non-parallel and, therefore, do not have axis that define an angle of 0 degrees therebetween. Applicant traverses the reliance of the Examiner on Ohsawa as showing a variance in neighboring projection angles. Ohsawa's suggestion to vary the angle theta in Figure 15 does not relate to the angle between the longitudinal axis of neighboring projections; rather the longitudinal axis of Ohsawa are always parallel. It is the angle formed between sides of the Ohsawa projections is taught to be variable, not the angle between longitudinal axis of neighboring projections. See FIG. 7 of the subject specification.

Sidewall/tread

Claims 1-8, 10-16 and 18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kemp (US 6,253,815) in view of Roberts et al (US 4,198,774) and optionally Ohsawa and Lobert et al. This rejection is respectfully traversed for the following reasons. As discussed previously, Kemp is merely cumulative to Ohsawa in showing projections that have various (non-undercut) asymmetric configurations. For the reasons previously presented, Kemp does not show an undercut projection formed by projection sides of differing lengths. Nor can Roberts be deemed to provide such a structure. The projections of Roberts in FIG. 5E are not formed by sides of differing lengths and cannot be construed as forming an apex. The Roberts projections of FIG. 5E, to the contrary, are flat at the top and would provide neither the means for differentiated optical appearance nor the means for improved water aquaplaning reduction. Variations in the Roberts projections could only be effected through height differentiation and would thereby fail to achieve the advantages of the claimed inventions.

Several of Kemp projections are formed by sides of differing lengths but none can be construed as being undercut in any manner. The Ohsawa and the Lobert references as discussed previously do not show an undercut projection in a tire. The unexpected result of the subject invention is to solve simultaneously the need for improved hydroplaning reduction; optical and color differentiation, and a reduction in dirt collection within the channels. None of the cited art can effect such a collective advantage. Furthermore, the Examiner has selectively through hindsight combined contradictory references using the

subject invention as a blueprint. Lobert is not directed to either a tread element or a sidewall element. None of the references teach a variable, non-zero angle separating neighboring projections or an undercut projection in a ground contacting tread region of a tire wherein the projection is formed by sides of differing lengths meeting at an apex. The Examiner has not pointed to any teaching in the references with which to support the selective reconfiguration of references now proposed as obvious.

Claim 9 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Kemp (US 6,253,815) in view of Roberts et al and optionally Ohsawa and Lobert et al. and further in view of Attinello et al. (US 5,645,660). . This rejection is likewise traversed for the reasons that claim 9 recites a height variation within a rubber component that is exposed to fluids having a relative displacement with respect to the rotating tire. The Attinello projections are not formed asymmetrically by sides of differing lengths. Thus, Attinello cannot support a variation in heights of projections so configured. There is no teaching or suggestion in Attinello, moreover, for an undercut projection in which the height of projections so configured are variable.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kemp (US 6,253,815) in view of Roberts et al. and optionally Ohsaw and Lobert et al. as applied above and further in view of Baker (US 5,603,796). For the reasons set forth above as the combination of Kemp and Roberts and Ohsawa and Lobert, the combination proposed by the Examiner is neither obvious nor sufficient to render the claimed invention unpatentable. The addition of Baker does not cure such insufficiency. Baker does not show a tape having projections configured pursuant to claim 17. There is further no teaching to support an alteration of the Baker tape to include projections of any configuration, much less the projections specific to claim 17. The conclusion of the Examiner that Baker's description of "before or after the tire 14 is mounted to a vehicle" implies a point subsequent to vulcanization is unsupported and not founded on any language, implied or otherwise, in the reference itself.

In view of the above, Applicants submit that the invention as claimed is patentably distinct over the cited art. A reconsideration of the application and an expeditious indication of allowance of all pending claims are, accordingly, requested.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Richard B. O'Planick", written over a horizontal line.

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